

The background of the slide is a composite image. The left side features a dark blue, semi-transparent map of New England, showing the outlines of the states and surrounding water bodies. The right side shows a yellow MBTA bus, partially obscured by a diagonal white and blue graphic element. The bus has the number '1040' visible on its front.

# New Arborway Bus Maintenance Facility and MBTA Bus Electrification Project

## *15% Design Public Meeting*

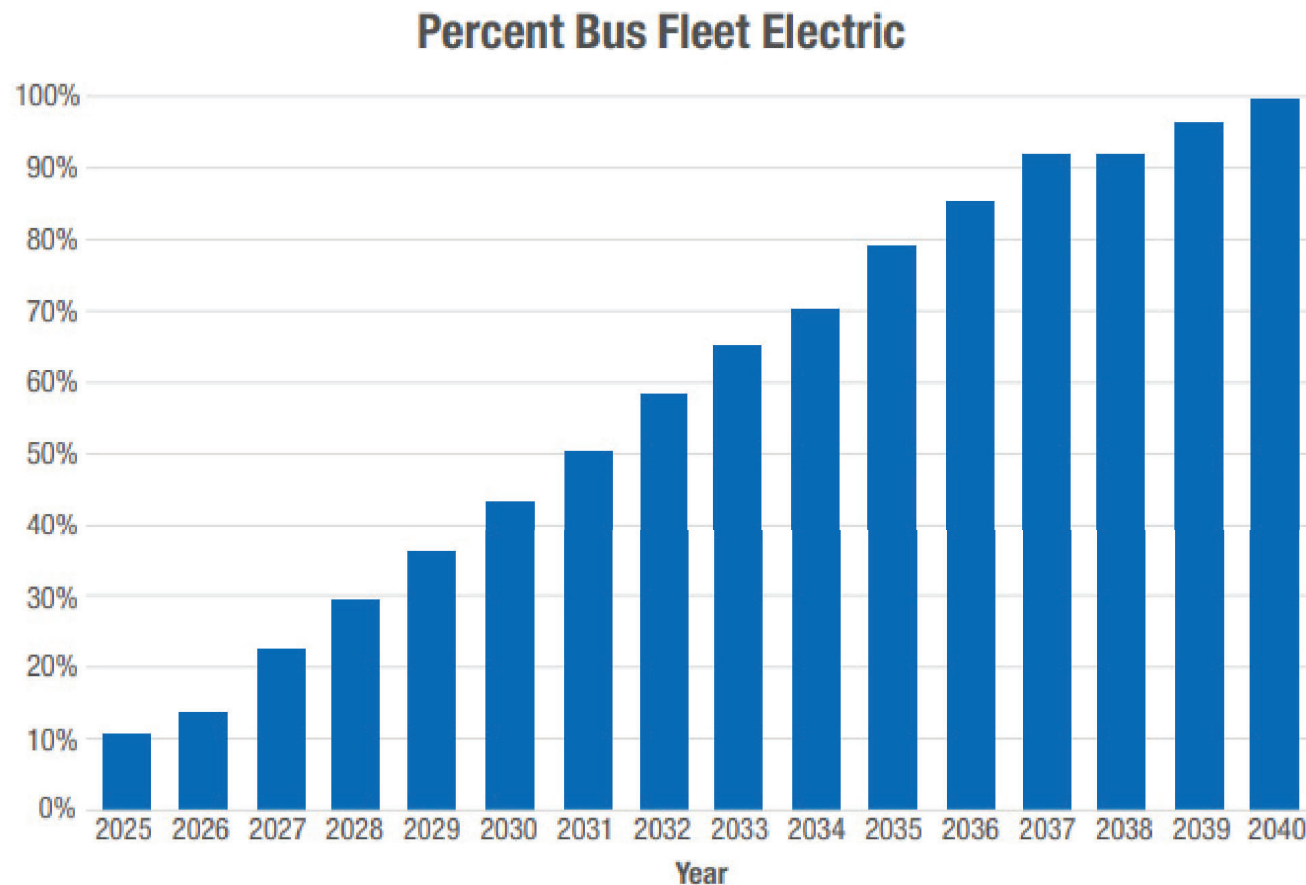
June 22, 2023

# Agenda

- Ice Breaker!
- Bus Electrification at the MBTA
- Project Purpose and Benefits
- Project Overview
- Project Cost Estimate and Schedule



# Bus Electrification Plan



**The MBTA aims to fully electrify its bus fleet by 2040** – one of the most aggressive electrification timelines in the United States – using battery electric buses (BEBs)

- Construct new facility with charging equipment every 2-3 years – \$4.5B investment
- Parallel Electric + Hybrid bus procurements – allows for aggressive pace while meeting rider needs
- Massachusetts Climate Law requires MBTA to purchase solely zero emission buses after 2029 and fully electrify fleet by 2040



# Arborway Project Drivers

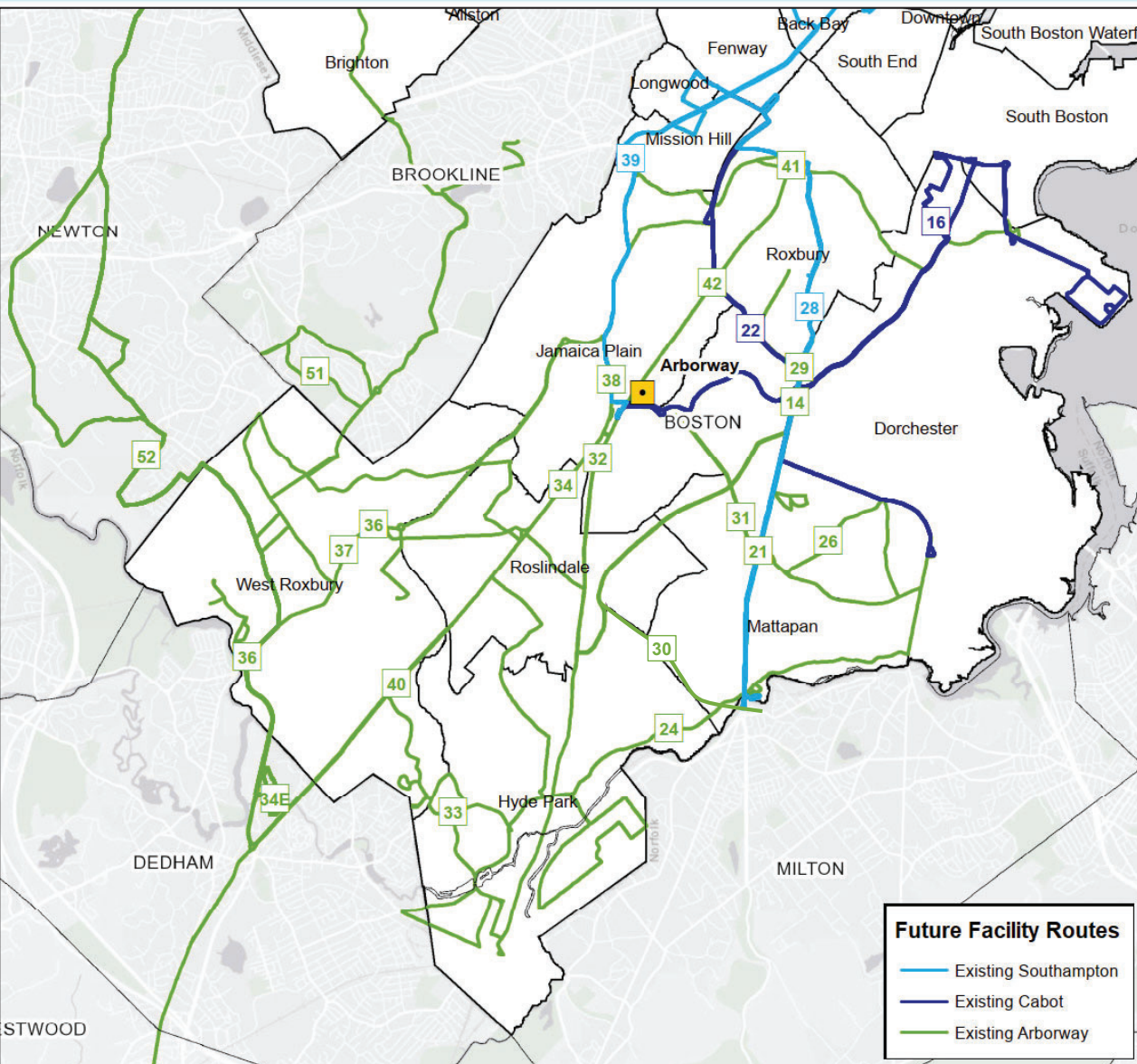


The Bus Modernization team identified Arborway as the program's next priority after Quincy, due to the following factors:

- **Fleet:** Project must be complete ahead of 2028/29 replacements of 118 CNG buses in existing facility
- **Equity:** Number of routes serving communities with high proportions of low income and POC households
- **Condition:** Temporary, inadequate, outdoor condition of facility



# Bus Electrification with New Arborway



- Expands fleet from **118 CNG buses to 200 battery electric buses** to transition both existing routes and additional routes in transit critical communities in Roxbury/Dorchester/Mattapan
- **Expanded capacity** for 60' buses
  - Route 32 to be upgraded to larger buses
  - Existing 60' routes – #28 on Blue Hill Ave and #39 on Centre Street – shifted to Arborway and provided with battery electric buses
  - **40% of local buses in Boston** will be electric upon completion – including all bus service in Jamaica Plain, Mattapan, Roslindale, and Hyde Park

# Public Engagement Overview

Date	Meeting
9/28/21	Jamaica Plain Neighborhood Council (JPNC) Update
<b>12/9/21</b>	<b>MBTA Kick-off Public Meeting</b>
2/7/22	Greater Mattapan Neighborhood Council Update
3/2/22	Greater Ashmont Main Streets Update
3/14/22	Stonybrook Neighborhood Association Update
3/30/22	Emerald Necklace Conservancy Update
5/9/22	Emerald Necklace Conservancy Update
5/17/22	WalkUP Roslindale Update
6/23/22	Emerald Necklace Conservancy Update
6/28/22	JPNC Update
9/27/22	JPNC Update
1/9/23	Stonybrook Neighborhood Association Update
2/10/23	Emerald Necklace Conservancy Update
4/6/23	Emerald Necklace Conservancy Update
5/22/23	JPNC – Arborway Yard Committee Update

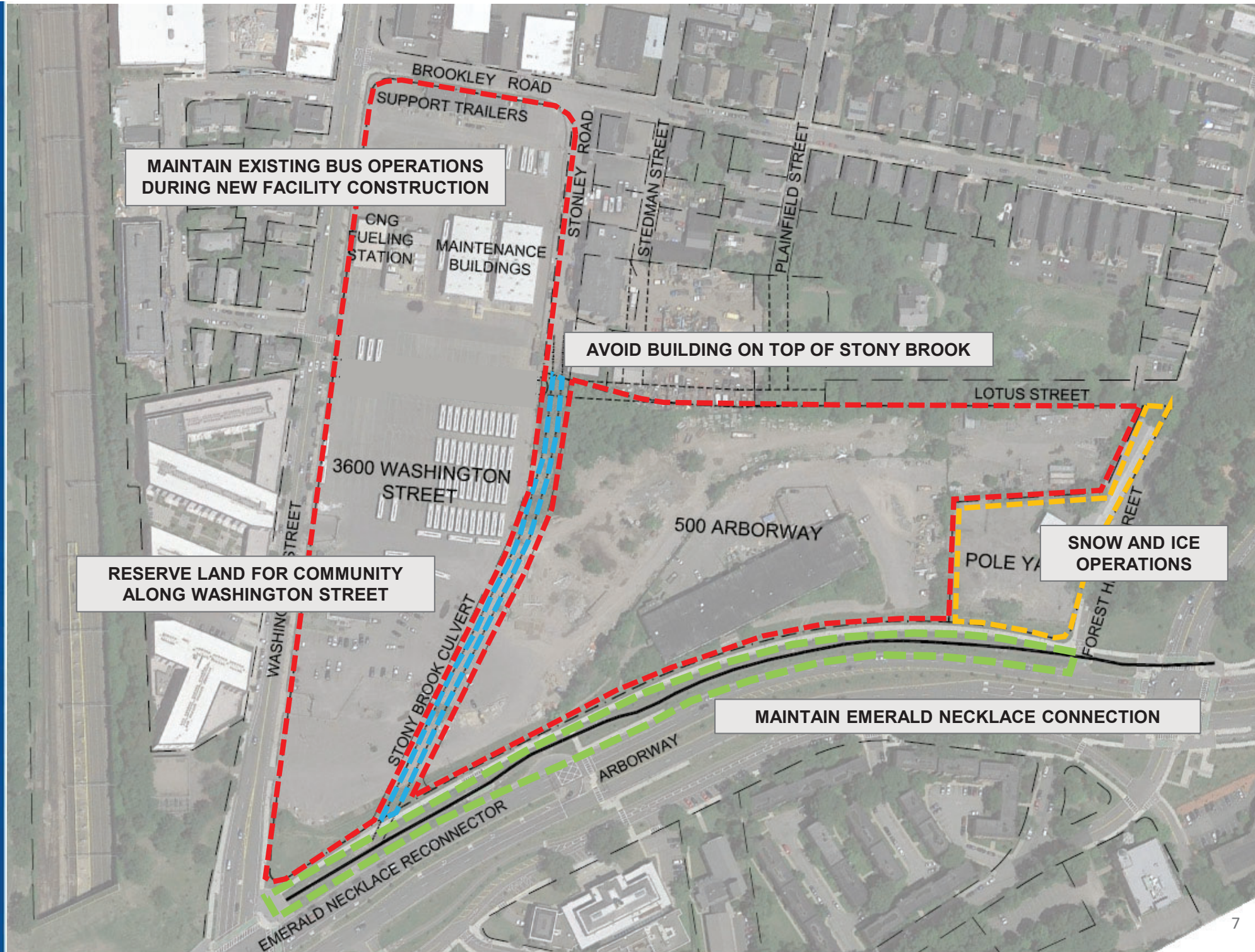
## Summary of issues raised to date:

- Acreage for affordable housing
- Maintenance of critical City of Boston functions
- Site design/Landscape plan and additional green space
- Building design's responsiveness to surrounding environment
- Fleet size/traffic impacts/parking
- Pedestrian/bicycle safety across Emerald Necklace Connector
- Community involvement/feedback



# Existing Site Constraints

- Modern, all indoor facilities require large, rectangular shaped footprints
- Stony Brook culvert bisects site
- Washington Street parcel contains existing operations and is preferred for community uses
- City of Boston DPW functions need to be accommodated





# Project Overview

- Two level all-indoor storage and maintenance capacity for **200 battery electric buses**
- Modern and safe working conditions
- **6.82 acres** dedicated to community uses – similar parcel to 2006 plan
- Maintains **1.3 acres for DPW** functions
- Maintains 1.2 acres Emerald Necklace Connection













Current view from Arborway

















# CONCEPTUAL ONLY – VIEW OF WASHINGTON STREET WITH TEST FIT FOR FUTURE DEVELOPMENT REPRESENTATION ONLY\*

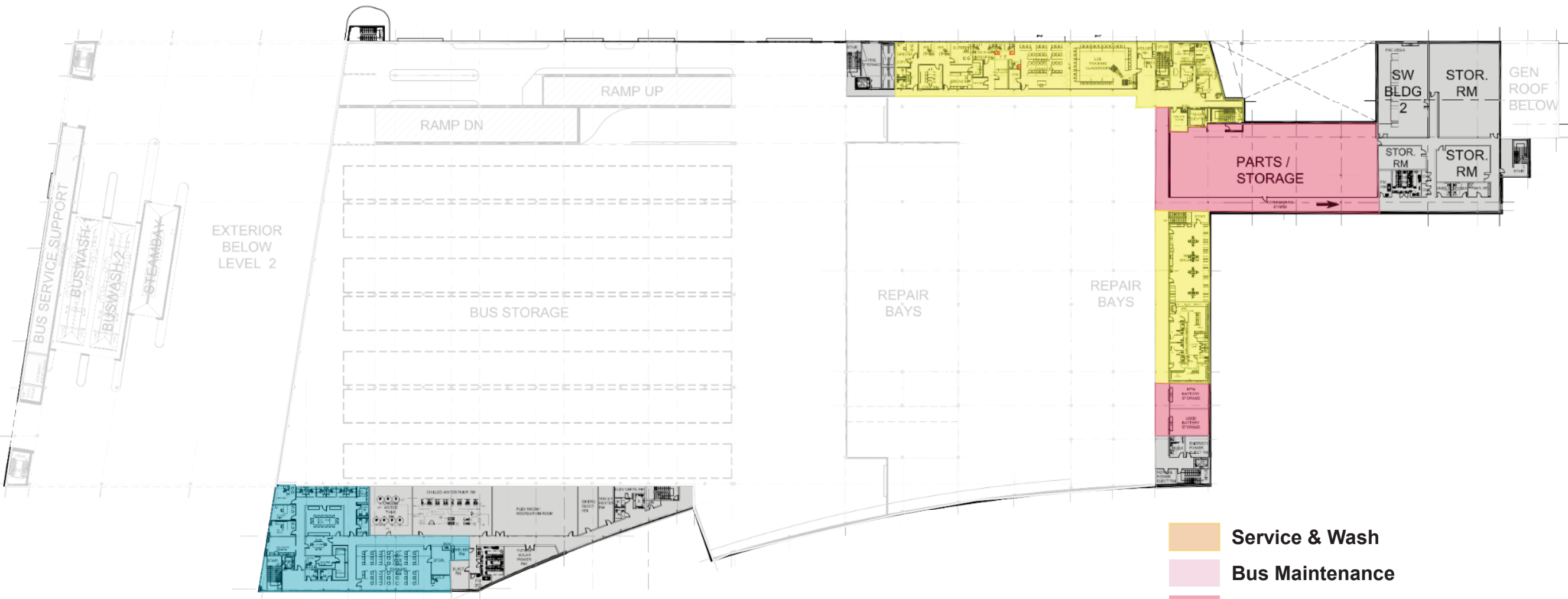


\*Note that any future development would be led by the City of Boston and informed by past and future community process





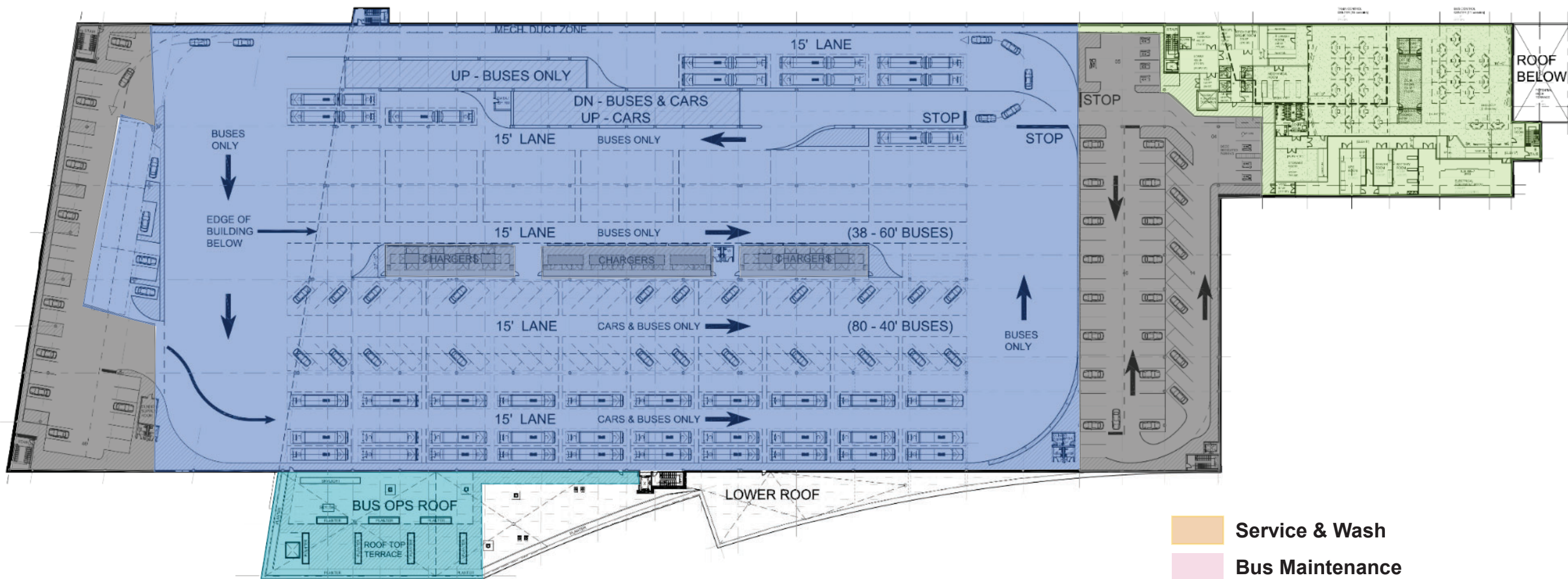




## FIRST FLOOR MEZZANINE

- Service & Wash
- Bus Maintenance
- Maintenance Support
- Bus Storage
- Transportation Management/Staff
- Maintenance Management/Staff
- Employee Parking
- Infrastructure
- BOCC





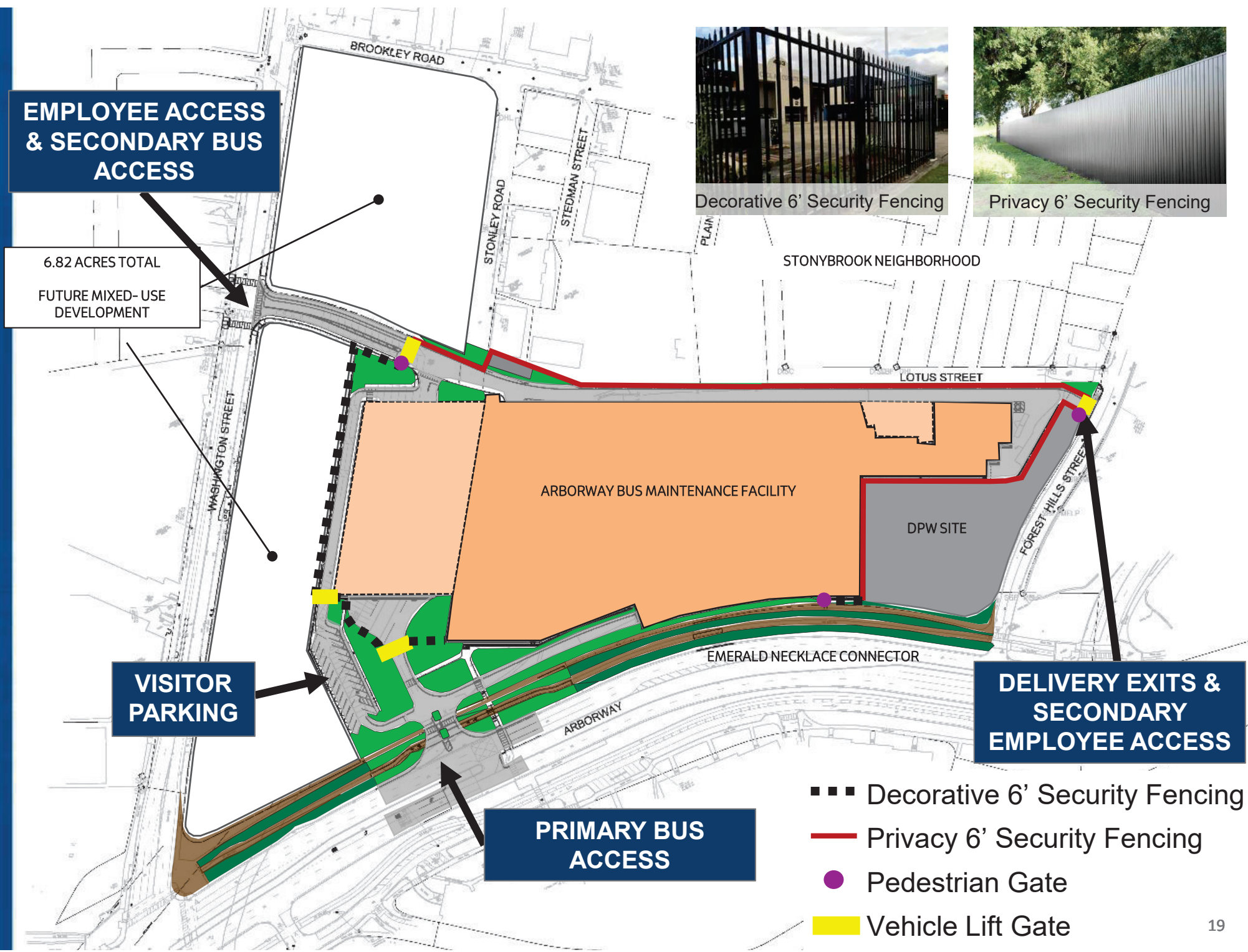
**SECOND FLOOR & BOCC PLAN**

- Service & Wash
- Bus Maintenance
- Maintenance Support
- Bus Storage
- Transportation Management/Staff
- Maintenance Management/Staff
- Employee Parking
- Infrastructure
- BOCC



# Site Access

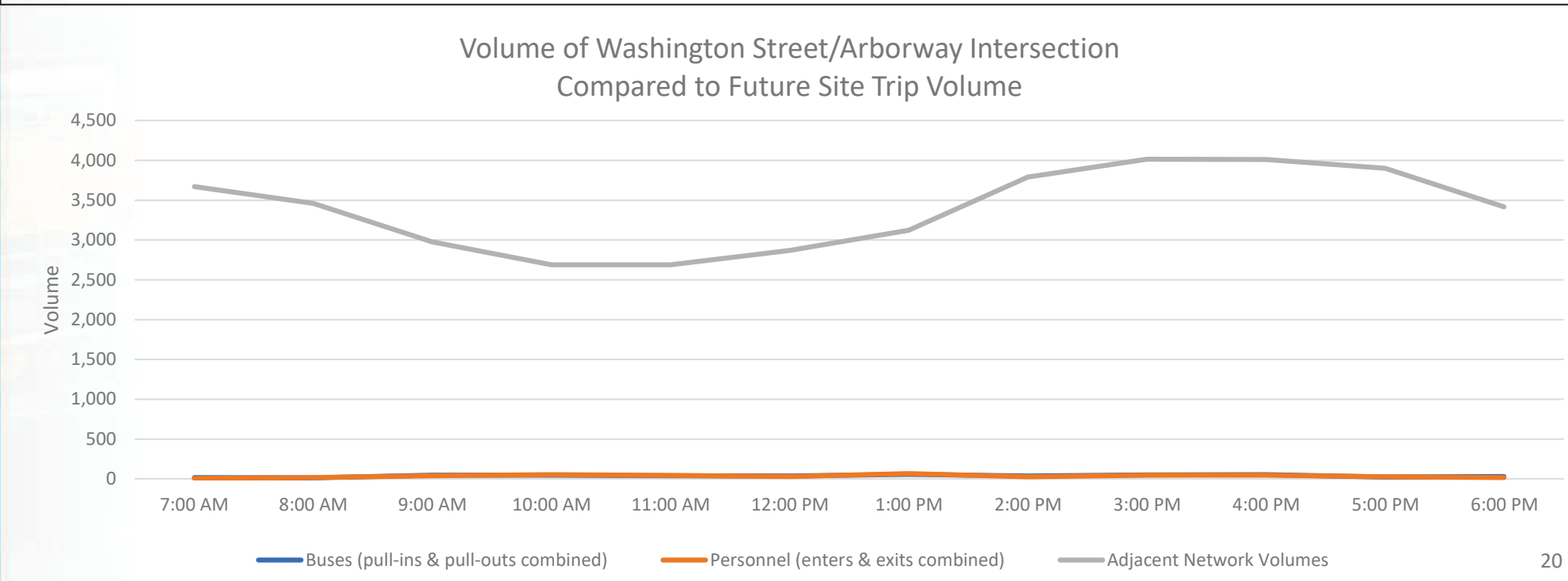
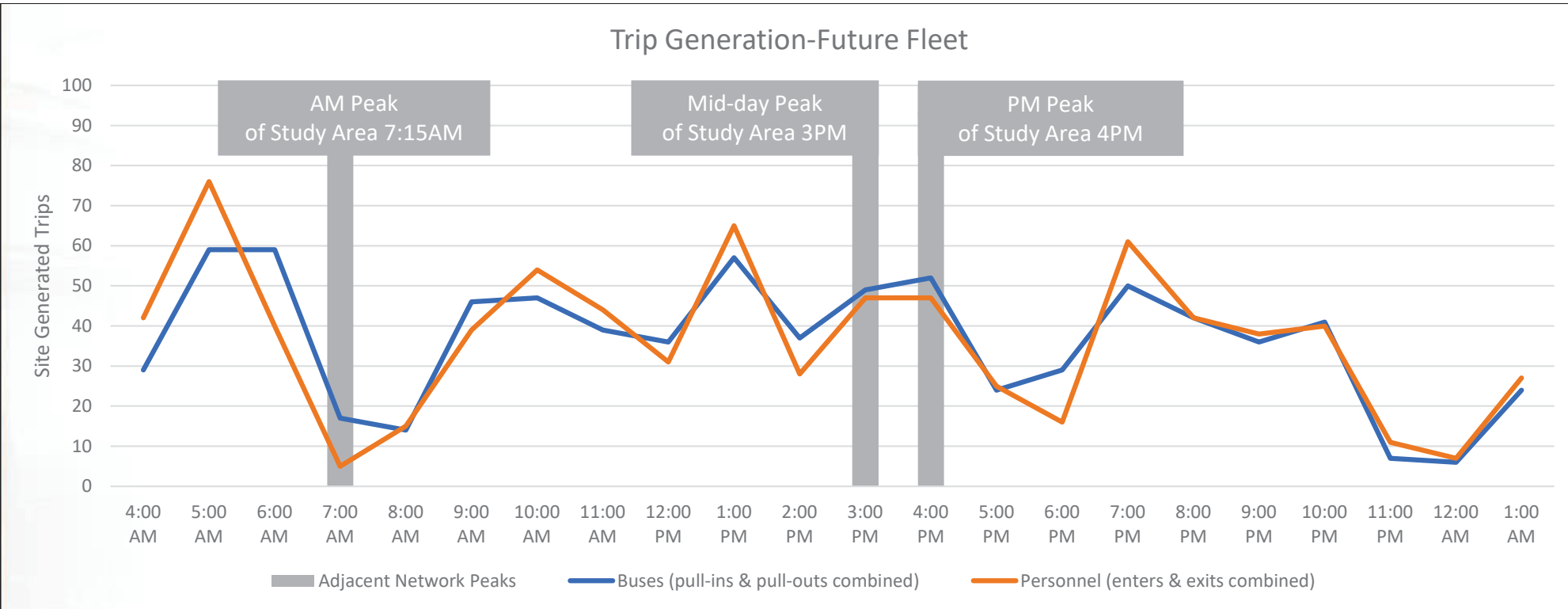
- Narrowed drive aisles to increase green space
- Minimized employee parking spaces to the extent possible
- DCR Construction and Access permit
- Access Option: buses exiting via Washington St.





# Site Access – Traffic Impacts

- Increase bus fleet from 118 to 200 buses, including spares
- Approx. 200 employee parking spaces
- Peak access times for facility occurs outside peak traffic times
  - Approximately 12 buses enter or exit the facility ion morning peak for Study Area – **0.2% vehicles on the road at the time**
  - Approximately 30 employees and other vehicles enter or exit in that same time period - **0.3% of trips on the road at the time**





# Concept – Bus Charging

- **Overhead charging** using pantograph system
- **Software** will help orchestrate bus charging and dispatch
- **Utility coordination** to support increased power load
- **Evaluate** opportunities for **supplemental charging** along routes



Edmonton Transit Service (ETS) battery electric buses charging by overhead pantograph charger.



# Sustainable and Resilient Building Systems

## Heating/Cooling

- All electric system meets latest building code standards and carbon reduction strategies
- Sized for future cooling needs based on climate projections

## Power

- Building load and bus charging requires significant power infrastructure and coordination with Eversource
- Redundant power feeds from separate substations support resiliency

## Water

- Water reclamation system designed to reuse up to 63% of water in bus wash, with an additional rainwater harvesting system for added benefit
- Conducted extensive modeling to size stormwater systems based on future, heavier precipitation expected with climate change



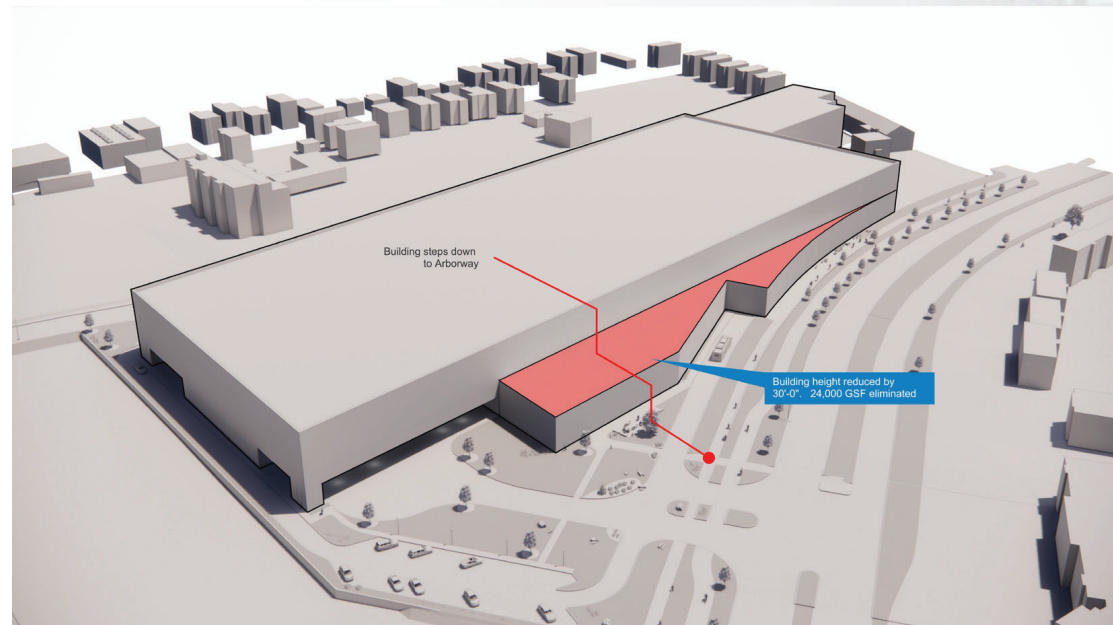
# Recent Modifications + Future Considerations

## Change Based on Stakeholder Feedback

- Reduced height of 2<sup>nd</sup> level (above front space, Back-up OCC)
- Reduced height by two feet
- Reduced footprint of surface parking lot and adjusted circulation
- Narrowed drive-access along Arborway/increased green space
- Added delivery truck exit at Forest Hills Street
- Refined façade design

## Future Considerations

- Location of surface parking
- Façade design
- Standard operating procedures for bus exits
- Landscaping





# Preliminary Cost Estimate

- Project budget will be set at 30% design in alignment with Federal Transit Administration Guidelines
- Construction cost estimate does not include all project costs – professional services, utility service upgrade, MBTA internal costs, project contingency
- \$36M in funding already available for professional services
- Construction funding to be requested in Fall 2025

Description	Cost
Bus Facility	\$296M
Back Up OCC (equipment only)	\$14M
<i>Direct Construction</i>	<i>\$310M</i>
Contingency (30%)	\$93M
<i>Construction with Contingency</i>	<i>\$403M</i>
Escalation (18.7% - mid-point 2027)	\$75M
CM Fee (est. 3.5%)	\$16M
<b>Construction Total</b>	<b>\$495M</b>



# Timeline / Public Process and Next Steps

- **Preliminary Design – Now– July 2023**
  - Coordination with City of Boston, BWSC, Eversource, and DCR (mid-June)
  - 15% public meeting (today)
  - Open House at Forest Hills Station – 6/28
  - MEPA Notice of Project Change Publication – 7/10
  - Incorporate feedback from internal and external stakeholders
- **Final Design Phase – Summer 2023 – 2025**
  - Award contract at July 27 Board Meeting
  - Continued stakeholder and public engagement
- **Targeted Construction Start – 2025**
- **Targeted Completion – end of 2028**





Check [www.mbta.com/arborwaybus](http://www.mbta.com/arborwaybus) for updates.

Email [ArborwayBus@mbta.com](mailto:ArborwayBus@mbta.com) to get on our list!

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